Amendments to the Claims

This listing of claims will replace all prior version, and listings, of claims in the application:

WHAT IS CLAIMED IS:

1. (currently amended) A circuit breaker comprising:

a plurality of sensors:

trip circuitry;

a microprocessor for controlling the amplitude and phase of test signals; and

a test signal generator incorporated in said circuit breaker for providing analog test signals to said trip circuitry under control of said microprocessor, wherein said test signals mimic the signals that would be received from the sensors.

2. (currently amended) The circuit breaker of claim 1, wherein said test signal generator comprises a source for generating said test signals selected from the group consisting of: ~~either~~ a current source, a voltage source ~~or both~~ ,and both a current source and voltage source ~~for generating said test signals~~.

3. (currently amended) The circuit breaker of claim 1, further comprising a standard interface connected to said microprocessor for connecting to a corresponding standard interface on a general purpose computing device, a general purpose computing device in connection with the standard interface wherein the connection is provided to receive at least one function from the general purpose computer device selected from the group consisting of: issuing commands to the microprocessor to control the test cycle, and display results of the test.

4. (original) The circuit breaker of claim 3, wherein said standard interface is a USB interface.

5. (original) The circuit breaker of claim 3, wherein said standard interface is an IEEE 1394 interface.

6. (original) The circuit breaker of claim 3, wherein said standard interface is an RS232 interface.

7. (original) The circuit breaker of claim 1, further comprising a wireless interface connected to said microprocessor.

8. (original) The circuit breaker of claim 7, wherein said wireless interface is a radio frequency transceiver.

9. (original) The circuit breaker of claim 7, wherein said wireless interface is an infra-red transceiver.

10. (original) The circuit breaker of claim 1, further comprising a network interface connected to said microprocessor for connecting said microprocessor to a data network.

11. (original) The circuit breaker of claim 1, further comprising at least one switch in a connection between said trip circuitry and said test signal generator, said switch being controlled by said microprocessor, said switch being open when said trip circuitry is not being tested so as to prevent erroneous test signals from causing a response by said trip circuitry.

12. (original) The circuit breaker of claim 1, further comprising:

a receptacle forming a gap in a connection between said trip circuitry and said test signal generator; and

a key for insertion in said receptacle to bridge said gap allowing communication between said trip circuitry and said test signal generator.

13. (original) The circuit breaker of claim 12, wherein said key is a rating plug.

14. (currently amended) A method of testing a circuit breaker comprising testing trip circuitry of said circuit breaker ~~with~~ by generating analog test signals ~~generated~~ with a test signal generator that is incorporated in said circuit breaker and by

controlling the amplitude and phase of the test signals to mimic the signals that would be received from circuit breaker sensors.

15. (original) The method of claim 14, wherein said testing further comprises generating either a current or a voltage test signal with a current source or a voltage source of said test signal generator.

16. (original) The method of claim 14, further comprising controlling said testing with a general purpose computing device connected to said circuit breaker through a standard interface.

17. (original) The method of claim 14, further comprising controlling said testing with a general purpose computing device communicating with said circuit breaker through a wireless interface.

18. (original) The method of claim 14, further comprising controlling said testing through a network to which said circuit breaker is connected via a network interface.

19. (original) The method of claim 14, further comprising preventing erroneous test signals from causing a response by said trip circuitry with at least one switch in a connection between said trip circuitry and said test signal generator, said switch being controlled so as to be open when said trip circuitry is not being tested.

20. (original) The method of claim 14, further comprising enabling said testing by inserting a key in a receptacle forming a gap in a connection between said trip circuitry and said test signal generator, said inserted key bridging said gap thereby allowing communication between said trip circuitry and said test signal generator.

21. (original) The system of claim 14, further comprising means for preventing erroneous test signals from causing a response by said trip circuitry.

22. (original) The system of claims 21, wherein said means for preventing erroneous test signals from causing a response by said trip circuitry comprise a switch in a connection between said trip circuitry and said test signal generator, said switch being controlled so as to be open when said trip circuitry is not being tested.

23. (original) The system of claim 21, wherein said means for preventing erroneous test signals from causing a response by said trip circuitry comprise a key for insertion in a receptacle that forms a gap in a connection between said trip circuitry and said test signal generator, said key, when inserted, bridging said gap thereby allowing communication between said trip circuitry and said test signal generator.

24. (currently amended) A system for testing a circuit breaker comprising

first means for generating analog test signals, said first means being incorporated in said circuit breaker; and

second means for controlling the amplitude and phase of the test signal used in testing trip circuitry of said circuit breakers with said test signals.

25. (original) The system of claim 24, wherein said first means further comprise means for generating either current or voltage test signals or both.

26. (original) The system of claim 24, further comprising means for controlling said testing with a general purpose computing device connected to said circuit breaker through a standard interface.

27. (original) The system of claim 24, further comprising means for controlling said testing with a general purpose computing device communicating with said circuit breaker through a wireless interface.

28. (original) The system of claim 24, further comprising means for controlling said testing through a network to which said circuit breaker is connected via a network interface.

29. (new) The apparatus of claim 2, wherein the voltage source and signal source are provided using an analog to digital converter driven with digital signals from the microprocessor.

30. (new) The apparatus of claim 29, wherein the digital signals from the microprocessor represent waveforms including sinuisoidal waveforms.

31. (new) The method of claim 14, wherein the voltage and current source are provided using an analog to digital converter driven with digital signals from a microprocessor.

32. (new) The method of claim 31, wherein the digital signals from the microprocessor represent waveforms including sinuisoidal waveforms.

33. (new) The system of claim 24, wherein the means for controlling includes voltage and current sources wherein the voltage and current sources are provided using an analog to digital converter driven with digital signals from a microprocessor.

34. (new) The system of claim 33, wherein the digital signals from the microprocessor represent waveforms including sinuisoidal waveforms.